

What is claimed is:

1. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture, comprising:

a filament;

an anchor for insertion through the tissue wall puncture attached to the filament at a first end of the closure device;

a sealing plug disposed proximal of the anchor;

a locking apparatus arranged adjacent to the sealing plug for compressing the sealing plug toward the anchor.

2. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 1 wherein the locking apparatus comprises a strap and hub attached to the filament.

3. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 2 wherein the strap and hub comprise a ratchet.

4. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 3 wherein the strap comprises an elongated track and a plurality of sloping teeth.

5. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 3 wherein the strap comprises a shoulder stop limiting movement of the hub.

6. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 3 wherein the hub comprises a nut having a flexible internal finger biased to engage the plurality of sloping teeth.

7. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 6 wherein the flexible internal finger comprises a notch or an external corner shaped to mate a surface of the plurality of sloping teeth.

8. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 6 wherein the flexible internal finger of the hub freely traverses the sloping teeth in degrees in a first direction, but is prevented from traversing the sloping teeth in a second direction.

9. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 2, further comprising a tube slidably disposed about the filament proximal to the hub for advancing the hub along the strap.

10. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 9 wherein the tube comprises an outer diameter that is larger than an inner diameter of the hub.

11. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 2 wherein the sealing plug is initially disposed over an outer diameter of the strap.

12. A tissue puncture sealing device comprising:  
an internal component configured to be positioned against an internal wall of a lumen;

an external component configured to be positioned external to the lumen, wherein the external component is operatively connected to the internal component by a locking apparatus, and wherein the locking apparatus is configured to compress and hold the internal and external components together.

13. A tissue puncture sealing device according to claim 12 wherein the wherein the tissue puncture is an arteriotomy.

14. A tissue puncture sealing device according to claim 12 wherein the internal component is an anchor and the external component is a collagen sponge.

15. A tissue puncture sealing device according to claim 12 wherein the locking apparatus comprises a strap and hub.

16. A tissue puncture sealing device according to claim 15 wherein the strap and hub comprise a ratchet.

17. A tissue puncture sealing device according to claim 16 wherein the strap comprises an biologically resorbable elongated track and a plurality of sloping teeth.

18. A tissue puncture sealing device according to claim 17 wherein the hub comprises a nut having a flexible internal finger biased to engage the plurality of sloping teeth.

19. A tissue puncture sealing device according to claim 15, further comprising a tube slidably disposed adjacent to the hub for pushing the hub along the strap.

20. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture, comprising:

an carrier tube having first and second ends;

an anchor disposed outside of the carrier tube at the first end thereof;

a sealing plug disposed inside the carrier tube at the first end thereof;

a one-way lock disposed at the first end of the carrier tube for compressing the sealing plug toward the anchor.

21. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 20, further comprising a filament attaching the anchor to the one-way lock.

22. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 20 wherein the one-way lock is disposed within the first end of the carrier tube, and wherein the sealing plug is slidably arranged about the one-way lock.

23. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 20 wherein the one-way lock comprises a ratchet.

24. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 20 wherein the ratchet comprises a strap and hub.

25. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 24 wherein the strap comprises a plurality of sloping teeth.

26. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 25 wherein the hub comprises a nut having a flexible internal finger biased to engage one or more of the plurality of sloping teeth.

27. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 20 wherein the anchor, sealing plug, and one-way lock comprise biologically resorbable materials.

28. A tissue puncture closure assembly for partial insertion into and sealing of an internal tissue wall puncture, comprising:

- an insertion sheath receptive of a closure device;

- the closure device, comprising:

- a carrier tube;

- a filament extending at least partially through the carrier tube;

- an anchor for insertion through the internal tissue wall puncture attached to the filament at a first end of the closure device;

- a strap and locking hub attached to the filament adjacent to the anchor, the hub movable along the hub in a first direction, but locked from moving opposite of the first direction;

- a sealing plug disposed at least partially about the strap and adjacent to the locking hub.

29. A tissue puncture closure assembly for partial insertion into and sealing of an internal tissue wall puncture according to claim 28 wherein the insertion sheath further comprises a one-way valve at a first end and a hemostatic valve at a second end.

30. A tissue puncture closure assembly for partial insertion into and sealing of an internal tissue wall puncture according to claim 28 wherein the closure device further comprises a tube slidably disposed about the filament adjacent to the locking hub for pushing the hub along the strap in the first direction.

31. A method of sealing an internal tissue puncture, comprising:

providing a closure device having an anchor for insertion through the tissue puncture, a sealing plug disposed proximal of the anchor, and a locking apparatus arranged adjacent to the sealing plug for lockingly compressing the sealing plug toward the anchor;

inserting the closure device partially into the internal tissue puncture;

deploying the anchor;

compressing the sealing plug and the anchor across the internal tissue puncture;

locking the sealing plug and the anchor into a fixed position relative to one another.

32. A method of sealing an internal tissue puncture according to claim 31, further comprising inserting the closure device into an insertion sheath.

33. A method of sealing an internal tissue puncture according to claim 31 wherein the compressing of the sealing plug further comprises advancing a one-way hub of the locking apparatus along a strap of the locking apparatus.

34. A method of sealing a puncture in an internal tissue wall accessible through a percutaneous incision, comprising:

inserting a closure device at least partially into the percutaneous incision;

advancing a one-way hub along a strap;

compressing a sealing plug toward the puncture by the advancing of the one-way hub along the strap.

35. A method of sealing a puncture in an internal tissue wall accessible through a percutaneous incision according to claim 34 wherein the compressing further comprises sandwiching the sealing plug and an anchor across the puncture.

36. A method of sealing a puncture in an internal tissue wall accessible through a percutaneous incision according to claim 34 wherein the advancing further comprises traversing a biased finger across a plurality of sloped teeth of the strap, wherein the biased finger and sloped teeth allow advancement of the hub, but preclude retracting of the hub.

37. A method of sealing a puncture in an internal tissue wall accessible through a percutaneous incision according to claim 34 wherein the inserting further comprises passing the closure device through an insertion sheath and deploying an anchor internal to the puncture.